What is claimed is:

1. A method of forming isolation film of semiconductor device, comprising the steps of:

sequentially forming a pad oxide film and a pad nitride film on a silicon substrate;

forming a photoresist pattern through which an isolation region is opened, on the pad nitride film;

etching the pad nitride film and the pad oxide film using the photoresist pattern as an etch mask, thus exposing the silicon substrate of the isolation region;

implementing an electrochemical etch process to form porous silicon in the silicon substrate of the exposed isolation region;

removing the photoresist pattern; and

implementing a thermal oxidization process to oxidize porous silicon, thereby forming an oxide film in the isolation region.

2. The method as claimed in claim 1, wherein the electrochemical etch process is implemented using a silicon dissociation reaction in a work cell that is designed to apply a voltage to the back of the silicon substrate to be used as a work electrode, in which a counterpart electrode and a reference electrode are designed so that they are immersed into an electrolyte with them kept at a given distance and an ultraviolet ray source for illuminating ultraviolet rays to the work electrode is installed on the top.

3. The method as claimed in claim 2, wherein a platinum electrode is used as the counterpart electrode.

4. The method as claimed in claim 2, wherein a hydrogen standard electrode is used as the reference electrode.

5. The method as claimed in claim 2, wherein the electrolyte employs a solution where HF and ethanol are mixed at a given ratio.

6. The method as claimed in claim 2, further comprising the step of adding an inert gas to the electrolyte in order to prevent a hydrogen gas occurring during the dissociation reaction of silicon from hindering the silicon dissociation reaction.

7. The method as claimed in claim 2, wherein the voltage is 1.5V ~ 8V.

8. The method as claimed in claim 1, wherein the thermal oxidization process is implemented using a wet oxidization mode at a temperature of 700 ~ 900 ℃ under O_2 and H_2 atmosphere.